

100% Material Declaration Data Sheet for XQ Virtex UltraScale+ HBM FPGA FSQH2892

Average Weight : 31.5938 g

Component	Substance Description	CAS # or Description	% of component	Use in product	Component weight / substance weight (in grams)	Component % of total
Silicon die	Silicon	7440-21-3	100.00	basis	1.158753	3.668%
					1.158753	
Micro-bump	Copper	7440-50-8	54.80	metal	0.015114	0.087%
	Nickel	7440-02-0	22.69	metal	0.006257	
	Tin	7440-31-5	21.87	metal	0.006032	
	Silver	7440-22-4	0.64	metal	0.000177	
					0.050855	0.161%
Micro-bump underfill	Amorphous silica	trade secret	46.87	Filler	0.023835	
	Amine compound	trade secret	20.84	Glue	0.010596	
	Epoxy resin compound-A	trade secret	15.63	Glue	0.007947	
	Epoxy resin compound-B	trade secret	15.63	Glue	0.007947	
	Epoxy resin compound-C	trade secret	1.04	Glue	0.000530	
				0.109695	0.347%	
Mold compound	Silica filler	trade secret	86.02	Filler	0.094361	
	Epoxy resin	trade secret	8.60	Glue	0.009436	
	Hardener resin	trade secret	5.38	Glue	0.005898	
				0.269007	0.851%	
Interposer die	Silicon	7440-21-3	100.00	basis	0.269007	
					0.112733	0.357%
C4 Bump	Copper	7440-50-8	80.00	metal	0.030186	
	Tin	7440-31-5	19.64	metal	0.022141	
	Silver	7440-22-4	0.36	metal	0.000406	
				0.079962	0.253%	
Solder Paste	Tin	7440-31-5	96.50	metal	0.077163	
	Silver	7440-22-4	3.00	metal	0.002399	
	Copper	7440-50-8	0.50	metal	0.000400	
				0.892780	2.826%	
C4 Underfill	Bisphenol F/ epichlorohydrin copolymer	9003-36-5	24.00	basis	0.214267	
	Phenolic resin	trade secret	19.00	basis	0.169628	
	Bisphenol A type liquid epoxy resin	25068-38-6	4.00	basis	0.035711	
	Amine type accelerator	trade secret	5	basis	0.044639	
	Silicon dioxide	60676-86-0	44.1	basis	0.393716	
	Carbon black	1333-86-4	0.9	basis	0.008035	
	Additives	trade secret	3	Additive	0.026783	
				11.307412	35.790%	
Stiffener Ring	Nickel	7440-02-0	10.50	Stiffener ring	1.187278	
	Manganese	7439-96-5	2.00	Stiffener ring	0.226148	
	Chromium	7440-47-3	20.00	Stiffener ring	2.261482	
	Iron	7439-89-6	66.35	Stiffener ring	7.502468	
	Other	trade secret	1.16	Stiffener ring	0.131166	
					0.221866	0.702%
Stiffener Ring Adhesive	Silicon	Confidential	80	Main material	0.177493	
	Others	Confidential	20	Main material	0.044373	
				1.906632	6.035%	
Solder Ball	Tin	7440-31-5	63	Main material	1.201178	
	Lead	7439-92-1	37	Main material	0.705454	
				0.012000	0.038%	
Capacitor 1	Ceramic	66402-68-4	34.00	Dielectric	0.004080	
	Nickel	7440-02-0	18.10	Inner Electrode	0.002172	
	Copper	7440-50-8	41.10	Terminal Electrode	0.004932	
	Nickel	7440-02-0	3.40	Electroplating	0.000408	
	Tin	7440-31-5	3.40	Electroplating	0.000408	
				0.062538	0.198%	
Capacitor 2	Barium oxide	1304-28-5	7.54	Ceramic element	0.004715	
	Titanium dioxide	13463-67-7	3.77	Ceramic element	0.002358	
	Ceramics, misc	trade secret	1.26	Ceramic element	0.000788	
	Copper	7440-50-8	2.98	Outer electrode	0.001864	
	Glass (silicon trioxide)	1303-86-2	0.07	Outer electrode	0.000044	
	Glass (silicon dioxide)	7631-86-9	0.27	Outer electrode	0.000169	
	Nickel	7440-02-0	0.19	N plating layer	0.000119	
	Nickel	7440-02-0	83.38	Inner electrode	0.052144	
	Tin	7440-31-5	0.56	Tin plating	0.000350	
					15.381999	48.687%
Substrate	Copper	7440-50-8	37.21		5.723158	
	Tin	7440-31-5	0.36		0.056048	
	Silver	7440-22-4	0.01		0.001742	
	Core	N/A	47.20		7.260000	
	ABF	N/A	14.16		2.178000	
	Solder Mask	N/A	1.06		0.163051	

Revision History

Date	Version	Description of Revisions
11/3/2021	1.0	Initial Xilinx release.

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